

WHAT IS CLAIMED IS:

1. A method of improving speaker sound quality in a vehicle, comprising the steps of:

determining standard sound ranges based upon the number and positions of passengers in a standard vehicle;

creating a memory table with data describing the most appropriate speaker angles and sound pressure output levels for each standard sound range;

detecting a passenger's position, number of passengers, and positions of the passengers' ears;

selecting the standard sound range that corresponds to the number and positions of passengers in the vehicle;

finding the speaker angles and sound pressure output levels from the memory table corresponding to the standard sound range from the selecting step;

adjusting each speaker so that each speaker satisfies the speaker angles and sound pressure output levels from the finding step.

2. The method in claim 1, wherein the sound standard range is divided into eleven seating arrangements and the eleven seating arrangements include:

a first instance of a driver seated in a driver's seat;

a second instance of a passenger seated in a VIP seat;

third to sixth instances where two passengers are seated in a driver's seat and a front passenger seat, two passengers are seated in the back seats in the left and right sides, one passenger is seated in the driver's seat and one passenger is seated in the left passenger seat, and one passenger is seated in the front passenger seat and another passenger is seated in the right passenger seat;

seventh to tenth instances where three passengers are seated in the two front seats and one passenger is seated in the left passenger seat, two passengers are seated in the front two seats and one passenger is seated in the right passenger seat, two passengers are seated in the back seat and a driver is seated in the driver's seat, and two passengers are seated in the back seats and one passenger is seated in the front passenger seat; and

an eleventh instance where four passengers are seated in the front two seats and in the back seats.

3. The method in claim 1, wherein the detecting step further comprises:
10 using piezo-electric elements mounted on seats to determine the number and positions of the passengers; and
using ultrasonic sensors mounted on a roof to determine ear positions of passengers.

4. A method of improving speaker sound quality in a vehicle, comprising
15 the steps of:
detecting the number, seating positions, and ear positions of passengers;
determining a standard sound range based on the data obtained in the detecting step; and
adjusting angles and sound pressure level outputs of each speakers according to
20 the standard sound range.

5. The method in claim 4, further comprising the steps of:
executing the detecting step at predetermined intervals; and

executing the determining and adjusting steps if the position of the passengers changed since the speakers were most recently adjusted.